

Sponsored by the U.S. Department of Homeland Security

# Nuclear Forensics Undergraduate Summer School

June 15 through July 24, 2015  
Washington State University

Application Deadline March 22, 2015

Apply at: <http://pearl1.lanl.gov/external/nuclear-forensics/>

**Who Can Apply:** Undergraduate students specializing in the physical sciences who are U.S. citizens. Applicants must submit a cover letter, a current resume, a university transcript (if unofficial, must include a spring 2015 schedule), and a letter of recommendation from a faculty member or technical reference. Please address the following questions in your cover letter:

1. Why are you interested in this program?
2. How would you benefit from this program?
3. What are your career goals and how does this program relate to them?

Students will be notified of selection by March 24, 2015.

**Stipend:** Each student will receive financial compensation to cover tuition, fees, housing, and meals, as well as a \$5,000 stipend. A portion of the stipend will be used to cover travel costs to and from WSU and travel costs for a visit to Pacific Northwest National Laboratory.

**Purpose:** In its sixth year, this six-week summer school will be held June 15 through July 24 at the campus in Pullman, WA.

The course is designed to provide comprehensive, experimental, hands-on training in topics essential to nuclear forensics as a means of interesting students in pursuing graduate studies in scientific disciplines related to nuclear forensics.

**Technical Focus:** Students will be trained in topical areas such as: • *Nuclear Decay* • *Atomic and Nuclear Structure* • *Nuclear Material Processes and Uses* • *The Nuclear Fuel Cycle* • *Radiation Detection* • *Standard Analytical Methods* • *Environmental Radiochemistry*.

**Objectives:** The course includes a combination of laboratory work and lectures, many of which are given by preeminent experts in the nuclear forensics community from Department of Energy National Laboratories and federal agencies. Coursework will cover major topics in nuclear and radiochemistry, as well as in the chemical and physical characterization of actinide-bearing materials. At the completion of this summer school, students will understand • *The chart of nuclides (and be able to use it)* • *Different modes of radioactive decay* • *Components of the nucleus and how it influences nuclear properties* • *How fission is induced and the resulting products* • *Radiation detection and mass spectroscopy, and be able to determine isotope concentration or ratios* • *The fundamental components and chemistry in the nuclear fuel cycle* • *The chemistry of key radio-nuclides in applications important to nuclear forensics* • *The application of analytical methods in characterizing materials* • *Contemporary issues in nuclear forensics*.

**Field Trip:** The 2015 Nuclear Forensics Undergraduate Summer School will include a field trip to Pacific Northwest National Laboratory to provide participants a first-hand view of an operational environment.

The WSU campus



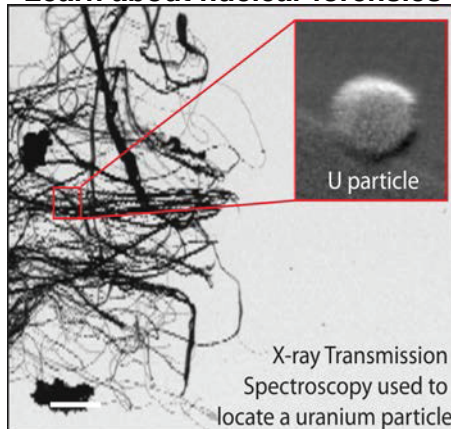
Field trip to a National Lab



Learn about radiochemistry



Learn about nuclear forensics



X-ray Transmission Spectroscopy used to locate a uranium particle



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